National Estuarine Research Reserve System Science Collaborative FY 2011 RFP Funding Opportunity

Full Proposal Preparation Guide

Please note: applicants must be invited to submit a full proposal to this funding opportunity.

January 24, 2011

NOAA
University of New Hampshire

Questions?

If you have questions about any aspect of this funding opportunity, please send an email to one of the NERRS Science Collaborative's funding program managers; the use of email enables us to provide consistent answers to questions from all applicants:

Kalle Matso,
kalle.matso@unh.edu
—or—
Justine Stadler,
justine.stadler@unh.edu

You also may ask questions about this funding program at an upcoming optional teleconference on February 16 at 2 PM Eastern Standard Time (EST).

Call-in information for this teleconference will be sent via email to NERRS sector listservs in early February 2011.

Important Note

Proposals to the National Estuarine Research Reserve System (NERRS) Science Collaborative's FY 2011 Funding Opportunity must demonstrate substantial involvement from NERRS staff. See pages 6 and 8 of this application package for more information on this requirement.

Table of Contents

I. About the NERRS Science Collaborative

The National Estuarine Research Reserve System (NERRS) Science Collaborative puts NERRS-led science to work in coastal communities. Administered by the University of New Hampshire, this program uses a competitive process to identify, fund, and support science-based projects that address local coastal management problems. Projects are selected through annual requests for proposals designed to ensure that researchers and intended users of the science work together to describe science and technology needs related to specific problems, define research questions, design and implement projects using appropriate approaches and methodology, and apply the results.

For more on the NERRS Science Collaborative: www.nerrs.noaa.gov/RCDefault.aspx?ID=364

II. Request for Proposals (RFP)

The NERRS Science Collaborative seeks proposals for projects that incorporate collaboration and applied science to address a coastal management problem that has been identified as a priority for a Reserve and a community that it serves. By "collaboration," we mean an explicit and justified plan for the interaction of applied science investigators and intended users throughout the project. For information on collaboration that may be helpful in developing your proposal, please read the *Collaboration Primer* that begins on page 12.

Reserves, and the communities they serve, are on the front lines of a changing climate. Shifting rainfall patterns, extreme storms, changing sea and Great Lakes levels, ocean warming and acidification—climate change manifests in many ways along our coasts. Its influences translate into greater risk of drought, fire, and flooding; more frequent storms with the potential to damage infrastructure and threaten human life; and the loss of habitat to support economically important wildlife. As they look to the future, coastal communities need resources to help them consider how they will address existing problems in light of climate change.

Therefore, this RFP seeks to empower Reserves to work with their local communities to address the influences of climate change on a problem related to at least one of the following focus areas: impacts of land use change, habitat change and restoration, management of stormwater, and nonpoint source pollution.

This RFP is open to NERRS staff working in partnership (if appropriate) with applicants from the United States (U.S.) academic, private, or public sectors. Each proposal must designate a fiscal agent who will represent the agency, institution, or friends group that will have overall responsibility for grant/contract administration. A NERRS staff member may be (but does not have to be) the fiscal agent on the project. Researchers from institutions outside the U.S. may be included on the project but cannot serve as the fiscal agent. Researchers from institutions outside the U.S. can only be included in the budget if they meet certain requirements for receiving federal funds. Federal employees and institutions are not eligible to receive funding from this RFP, but they can participate as unfunded project team members.

Approximately $4,300,000 will be available to fund projects. While the Science Collaborative does not place upper or lower limits on proposed budgets, we anticipate that most annual budget requests will range from $100,000 to $300,000. Proposed projects may be one, two, or three years in duration.

III. Project Requirements

Proposed projects may be anywhere on the spectrum that connects science to decision-making—from earliest stage research to demonstration and implementation. Examples of project results include data to inform best management practices, protocols, instrumentation, engineering designs, decision support systems, educational programs, trainings, needs assessments, and other information-based tools.

Proposed projects must fulfill each of the following requirements:

A. Address a coastal management problem that is a priority for a Reserve and a community it serves;

B. Relate to at least one of the following RFP focus areas:
   1. Impacts of land use change
   2. Habitat change and restoration
   3. Management of stormwater
   4. Nonpoint source pollution

C. Address the influence of climate change on the coastal management problem and goals for the project;

D. Demonstrate significant NERRS involvement in proposal development and project implementation;

E. Demonstrate that the project will address the coastal management problem by having the right people use sound science. Therefore, the project must integrate applied science and collaboration.

   We define "applied science" as science that generates practical solutions using knowledge related to natural and/or built systems (biology, geology, chemistry, engineering, etc.), and/or social systems (policy, planning, resource management, sociological, organizational and individual behavior, anthropology, economics, etc.).

   We define "collaboration" as an explicit and justified plan for the interaction of applied science investigators and intended users of the science throughout the project.

For information and resources on collaboration that may be helpful in developing your proposal, please read the *Collaboration Primer* that begins on page 12.

IV. Application & Proposal Evaluation Process

1. Read the *Collaboration Primer* that begins on page 12 of this guide. The primer offers additional information related to collaboration that may be helpful in developing a proposal. If you are applying to this RFP, please don't skip this step.

2. Prepare and submit a preliminary proposal using the guidance in this document. The deadline to submit your preliminary proposal to the Science Collaborative is 1 PM EST (1300 hours) on March 24th, 2011. Guidance for developing a preliminary proposal is available at http://www.nerrs.noaa.gov/RCDefault.aspx?ID=612.

3. Complete preliminary proposals will be reviewed by collaboration experts and applied scientists in appropriate disciplines. Based on the outcome of that review, a subset of preliminary proposal applicants will be invited to submit a full proposal. All applicants will receive feedback from the preliminary proposal review process.
4. Applicants invited to develop full proposals will be notified by May 12th, 2011. The deadline to submit a full proposal is 1 PM on July 14th, 2011. Complete full proposals will undergo a peer review. Applicants will have the opportunity to respond to peer reviews in the form of a short rebuttal in September 2011.
5. A multidisciplinary panel of collaboration experts and applied scientists in appropriate disciplines will review each full proposal, associated peer reviews, and the rebuttal, and then make recommendations for funding. Applicants will be notified of the outcome of the panel's recommendations via email in October 2011.
6. Funded projects will begin in November 2011.

V. Full Proposal Preparation

This section provides guidance on how to submit a full proposal to this funding opportunity. Each proposal must include components A through K (listed below). Appendices will not be accepted. Proposals that fail to include all components A through K will be deemed "incomplete" and eliminated from the competition. The applicants will be notified.

A. Title page
B. Abstract
C. Full proposal narrative
D. Literature cited
E. Reserve manager form
F. Intended user letter of commitment
G. Budget forms
H. Budget justification
I. Qualifications
J. Timeline
K. Reference map

A. Title page

Title pages must be in a standard format. Please use the title page template included in the forms package for this funding opportunity, available at http://www.nerrs.noaa.gov/RCDefault.aspx?ID=612.

B. Abstract (one-page limit)

On a separate page, provide an abstract summarizing the salient points of your proposal. Include a short description of the coastal management problem addressed by your proposal, a brief project overview, anticipated benefits to intended users, and methods to achieve the project's goals.

C. Full proposal narrative (19-page limit)

Full proposal narratives are not to exceed 19, single-spaced pages with one-inch margins formatted in Helvetica 12-point font. This limit includes all charts, graphs, and other images. Full proposals must address narrative requirements one through five in the order provided. Please use the headings below; this will facilitate review of your proposal.

1. Coastal management problem
2. Project overview
3. Roles and responsibilities
4. Collaboration objectives and methods
5. Applied science objectives and methods

1. Coastal management problem

Please address all of the questions below in the order that best suits the flow of your proposal.

- What is the local coastal management problem your project seeks to address?
- How is it related to at least one of this RFP's focus areas?
- How does climate change influence the problem you have described?
- How did you interact with intended users to define the problem?
- Why is addressing this problem a priority for the Reserve and a community it serves? Please cite evidence, such as planning documents, workshop proceedings, needs assessments, NERRS strategic plan, etc.
- What are the current barriers to address the defined problem? Consider research and technology gaps, as well as barriers related to the problem's human dimensions, such as institutional capacity, politics, economics, and cultural values.

2. Project overview

Please address all of the questions below in the order that best suits the flow of your proposal.

- Briefly describe how your project will address the defined problem.
- What are your overall goals for this project?
- How has the influence of climate change on your problem shaped your goals for this project?
- Which organization(s) intend to use the results of your project?
- How do they anticipate using project results in management decisions and actions related to the problem?
- What is the level of involvement of NERRS staff in developing proposal and implementation of the project?

3. Roles and responsibilities

Each project must include the following team member positions:

- Project coordinator
- Fiscal agent
- Collaboration lead
- Applied science investigator(s)
- Intended user(s)

Different people must fill the roles of collaboration lead, applied science investigator(s) and intended user(s). These roles require distinct skills and represent diverse perspectives on the project. However, any team member may fill the roles of project coordinator and fiscal agent as long as they have the appropriate skills and experience for these and any other role(s) assigned.

For each position, please answer the following questions:

- Who will fill it?
- What are their specific responsibilities on the project?
- What are the skills and experience that qualify them for that position?

Project coordinator (mandatory)
Coordinates project activities, acts as liaison between project team members and is accountable to the funder for project results and outcomes. While this position serves as the primary liaison between the project and the Science Collaborative, we reserve the right to communicate with any project team member to ensure that objectives for collaboration and applied science are being met once a project is funded.

Fiscal agent (mandatory)
Represents the agency, institution, or friends group with overall responsibility for grant/contract administration.

Collaboration lead (mandatory)
Leads the development and implementation of an explicit and justified plan for the interaction of applied science investigators and intended users throughout the project. For more information on the characteristics of a collaboration lead, see the *Collaboration Primer* that begins on page 12.

Applied science investigator(s) (mandatory)
Implements applied science methods.

Intended user representative(s) (mandatory)
Provides perspective on need for, and use, of the applied science throughout the duration of the project. The intended user(s) listed here must represent an organization that intends to use the results of the project. Attach a letter of commitment for each intended user named here. See page 8 for guidance. Intended users may be compensated for their time. The intended users identified here are not necessarily meant to be the only ones who participate in your project. Applicants are not expected to identify all of the intended users that may participate in their project.

Additional investigator(s) (optional)
Each project may include additional investigators beyond those required by the Science Collaborative to meet applied science or collaboration objectives. Describe their roles and responsibilities on the project and the skills and experience that qualify them.

4. Collaboration objectives and methods

Please address all of the questions below in the order that best suits the flow of your proposal.

- What are your collaboration objectives for the project? (See the *Collaborative Primer* section on "Creating collaboration objectives" on page 15.)
- How will they contribute to your overall goals for the project?

- What methods will you use to meet your collaboration objectives? (See the *Collaborative Primer* section on "Key characteristics of collaboration methods" on page 16.)
- What is your justification for using these methods? Describe your experience using them under similar circumstances and/or cite literature to support that their use is appropriate for the situation at hand.

5. Applied science objectives and methods

Please address all of the questions below in the order that best suits the flow of your proposal.

- What are your applied science objectives for the project?
- How will they contribute to your overall goals for the project?
- What methods will you use to meet these objectives?
- What is your justification for using these methods? Describe your experience using them under similar circumstances and/or cite literature to support that their use is appropriate for the situation at hand.

The following sections D through K are not included in the 19-page narrative limit. However, they are required supporting information that must be included in your proposal.

D. Literature cited

Please include a complete list of all literature cited in the proposal.

E. Reserve manager form

The Reserve manager must complete and sign the bottom portion of the Reserve manager form submitted with your preliminary proposal. The purpose of the form is to indicate if the level of NERRS involvement has changed in the process of developing the full proposal. This form is not intended to evaluate the quality of the proposed project. Reserve manager forms must be in a standard format. Please use the template included in the forms package for this funding opportunity, available at http://www.nerrs.noaa.gov/RCDefault.aspx?ID=612.

F. Intended user letter of commitment

You must include a letter from each intended user listed in the "Roles and responsibilities" section. The letter must include a description of the intended user's decision-making capacity as it relates to the identified coastal management problem and answers to the following questions: How will this project increase their capacity, or that of their organization, to address the identified problem? What are they committed to doing on the project? What are their expectations in return for that commitment?

G. Budget forms

You must submit one budget form for each year of your project, as well as a cumulative budget form. All project team members (including students) from the fiscal agent's institution should be listed in section A of the budget form. Project team members from institutions other than that of the fiscal agent must be listed as subcontractors in section F. You must also provide a cumulative budget sheet for each subcontractor. Identify the subcontractor budget form as "Subcontractor: name" at the top and use section A for their salary and the salaries of other associates from their institution that are involved in the project. If applicable to your proposal, the budget for supplies and services related to meetings or workshops should be listed under the "expendable supplies and equipment" budget line. Budget

forms must be in a standard format, as provided in the forms package available at http://www.nerrs.noaa.gov/RCDefault.aspx?ID=612.

H. Budget justification

Provide a detailed budget justification that explains each item in your cumulative budget form, including salary, tuition, subcontracts, fringe benefits, equipment, supplies, travel, costs associated with implementing applied science and collaboration methods, and indirect costs. Describe the time commitment and budget for each person listed in the "Roles and responsibilities" section of your full proposal. If a project team member is not included in the budget, please describe how he or she will be supported in order to execute their responsibilities on the project.

I. Qualifications

Please include a *curriculum vitae*, résumé, or professional narrative (maximum length of two pages) for each project team member described in the "Roles and responsibilities" section of your full proposal.

J. Timeline

Provide a timeline that identifies discrete products and activities that signify progress toward project goals. Timelines must be in a standard format, as provided in the forms package available at http://www.nerrs.noaa.gov/RCDefault.aspx?ID=612.

K. Reference map (one-page limit)

Please include a reference map of the site and surrounding watershed where the work will take place. The image of the map may not exceed one page. Limit text on this page to the identification of locations and a legend, if applicable.

Providing the following information is optional.

You may include a list of reviewers you believe to be especially well qualified to review the proposal. You also may designate individuals you would prefer not review the proposal, indicating why. These suggestions are optional. The Science Collaborative will consider them and may contact you for more information. However, the decision of whether or not to use your suggestions is at the discretion of the Science Collaborative.

VI. Full Proposal Submission

The deadline for receipt of your full proposal by the NERRS Science Collaborative is 1 PM EST (1300 hours) on July 14th, 2011. Your submission MUST be in the form of a single PDF with a file size of 5 MB or less. Proposals sent in any other file format, or in a larger size, will NOT be accepted. Please send your proposal as a single PDF file to justine.stadler@unh.edu.

You must also mail one signed hard copy of your proposal, (printed double-sided and identical to the electronic version) postmarked no later than July 19, 2011. Please mail this to the NERRS Science Collaborative program coordinator:

Cindy Tufts
Gregg Hall, Suite 130
35 Colovos Road
Durham, NH 03824

VII. Full Proposal Evaluation

All full proposals will undergo an initial review to make sure they are complete. Incomplete proposals will be eliminated from the competition without further review and the applicants will be notified. Failure to do one or more of the following will result in a proposal being deemed incomplete:

- Follow the narrative structure as outlined;
- Include all required information, A through K;
- Follow directions with regard to formatting and submission procedures.

Each complete proposal then will be peer reviewed by two sets of reviewers—one with expertise in collaboration and another with expertise in the applied science described in each proposal. Applicants will have the opportunity to read and respond to the peer reviews in the form of a short rebuttal.

Finally, a multidisciplinary panel of collaboration experts and scientists in appropriate disciplines will review each full proposal, attendant peer reviews, and the rebuttal, and then make recommendations for funding to the Science Collaborative.

Projects recommended for funding are subject to National Environmental Policy Act (NEPA) review regarding the environmental impacts of the proposed activities. Funding is contingent upon compliance with NEPA guidelines. Learn more about NEPA at www.epa.gov/compliance/nepa.

Review criteria

Complete full proposals will be evaluated using the weighted review criteria below. The questions under each weighted criteria category are designated “all reviewers” if both the collaboration and applied science reviewers will respond to the same questions. Otherwise, the questions under the criteria headings are arranged in two sets—one for the collaboration reviewers and one for the applied science reviewers in order to focus each reviewer on the aspects of the proposal that best match their expertise.

1. Coastal management problem (15%)

All reviewers

- Does the problem relate to an RFP focus area and is it a priority for the Reserve and a community that it serves?

- Does the proposal demonstrate that the applicants have adequately considered the influence of climate change on the problem to be addressed?

- Is the problem well described (Consider the problem description, identified barriers to addressing the problem, and how it was defined with intended users.)

2. Project overview (15%)

All reviewers

- Does the proposal demonstrate that the project described will effectively address the problem? (Consider the goals, the organizations that will use results, and how they will use them.)

- Do the project goals adequately reflect the influence of climate change on the problem being addressed?

- Is there significant NERRS involvement? (Consider the description given in this section of the proposal and the Reserve manager form.)

3. Roles and responsibilities (20%)

Collaboration reviewers

- Does the collaboration lead have the skills and experience to carry out their role on the project? (Please consider the collaboration objectives and methods detailed earlier in the proposal.)

- Do the fiscal agent, project coordinator and, if applicable, additional investigators working on collaboration have the skills and experience to fill their roles and contribute to meeting the project goals? Are there skill sets missing?

- Is the intended user(s) on the team appropriate in terms of the described problem and goals for the project?

Applied science reviewers

- Does the applied science investigator(s) have the skills and experience to carry out their role on the project? (Please consider the applied science objectives and methods detailed in the proposal.)

- Do the fiscal agent, project coordinator and, if applicable, additional applied science investigators have the skills and experience to fill their roles and contribute to meeting the project goals? Are there skill sets missing?

- Is the intended user(s) on the team appropriate in terms of the described problem and goals for the project?

4. Objective and methods (40%)

Collaboration reviewers

- Does the proposal demonstrate a strong connection between collaboration objectives and the project goals?

- Does the proposal describe collaboration methods that will be effective in achieving these objectives? (Consider the detail provided on the methods and the related justification.)

- Do the proposed methods demonstrate appropriate technical capability and familiarity with collaboration?

Applied science reviewers

- Does the proposal demonstrate a strong connection between applied science objectives and the project goals?

- Does the proposal describe applied science methods that will be effective in achieving these objectives? (Consider the detail provided on the methods and the related justification.)
- Do the proposed methods demonstrate appropriate technical capability and familiarity with the applied science subject matter?

5. Budget: (10%)

Collaboration reviewers

- Does the budget allocate sufficient funds to meet the project goals? (Please consider the budget allotted to implement collaboration methods and related support for the project team.)

Applied science reviewers

- Does the budget allocate sufficient funds to meet the project goals? (Please consider the budget allotted to implement applied science methods and related support for the project team.)

VIII. Proprietary Information & Intellectual Property

Disclosure of patentable ideas, trade secrets, and privileged or confidential commercial or financial information may harm an applicant's chances to secure future patents, trademarks, or copyrights.

Proprietary information of this kind should be included in proposals only when it is necessary to convey an understanding of the proposed project. Applicants must mark proprietary information clearly in the proposal, using appropriate labels, such as, "The following is (proprietary or confidential) information that (name of proposing organization) requests not be released to persons outside the NERRS Science Collaborative, except for purposes of review and evaluation." In addition, the title page you will submit with your proposal includes a confidentiality statement. Please review it and contact us with questions.

Applicants are encouraged to protect the intellectual property of ideas at the proposal preparation stage, if appropriate. This could allow you to talk freely about ideas and avoid the inadvertent loss of intellectual property rights. If applicable, please consult your institution's technology transfer or intellectual property office to determine the best way to protect your intellectual property.

IX. Collaboration Primer

This primer offers resources related to the integration of collaboration and applied science. Potential applicants may find this primer helpful in developing a proposal to the NERRS Science Collaborative's FY 2011 RFP. This primer is meant as a reference only.

This primer includes the following sections:

A. Why collaboration?
B. Key characteristics of a collaboration lead
C. Creating collaboration objectives
D. Key characteristics of collaboration methods
E. Collaboration resources

A. Why collaboration?

One comment we frequently hear from applicants to our program is "What do you mean we have to collaborate? We already do that!" And in some respects they do. They might be applied scientists embedded in management organizations, or academic scientists who work with their peers in other disciplines, or researchers who educate the general public. Reaching across disciplinary and organizational boundaries is certainly a form of collaboration, and an important one, but at the NERRS Science Collaborative we have a different definition.

By "collaboration," we mean an explicit and justified plan for the interaction of applied scientists and the intended users of science throughout a research project—from the definition of a problem throughout the implementation of that project's results. This definition of collaboration guides our funding opportunities.

Why? Our program is focused on putting NERRS-led science to work in coastal communities, and there is considerable evidence to support the idea that involving intended users throughout the scientific process increases the likelihood that the knowledge being generated will be applied. There are straightforward reasons for this that have been identified through the application and rigorous evaluation of collaboration methodologies:

- Intended users are more aware of the science;
- Science focuses on questions that are a high priority to intended users;
- Science is informed by the knowledge possessed by intended users;
- Science generates knowledge in a way that is practical and useable (e.g., the timing is right, the level of detail is appropriate, economic factors have been considered);
- Intended users trust the science.

Successful collaboration as defined above requires a specific set of skills. To be competitive, your proposal must demonstrate knowledge and skill related to collaboration. Therefore, we encourage applicants to involve the collaboration lead as early as possible in proposal development.

The publications listed below provide more information on collaboration.

Science Policy Assessment and Research on Climate. 2010. *Usable science: A handbook for science policy decision makers.* A Report Published by Science Policy Assessment and Research on Climate. http://cstpr.colorado.edu/sparc/outreach/sparc_handbook/brochure.pdf

National Research Council. (2009). *Informing Decisions in a Changing Climate. Panel on Strategies and Methods for Climate-Related Decision Support, Committee on the Human Dimensions of Global Change. Division of Behavioral and Social Sciences and Education.* Washington, DC: The National Academies Press. (Chapter 2 "Effective Decision Support," is most relevant to collaboration methods.) http://www.nap.edu/catalog.php?record_id=12626

Cash, D.W., W.C. Clark, F. Alcock, N.M. Dickson, N. Eckley, D.H. Guston, J. Jager, R.B. Mitchell. 2003. Knowledge systems for sustainable development. *Publications of the National Academies of Science*. 100(14): 8086-8091.
http://www.pnas.org/content/100/14/8086.abstract

McNie, E.C. 2007. Reconciling the supply of scientific information with user demands: an analysis of the problem and review of the literature. *Environmental Science and Policy*. 10: 17-38
http://sciencepolicy.colorado.edu/admin/publication_files/resource-2486-2007.03.pdf

B. Key characteristics of a collaboration lead

The NERRS Science Collaborative's FY 2011 RFP requires that all project teams include a collaboration lead. This person is responsible for balancing the perspectives of the applied science investigators and intended users throughout the project. Working with the rest of the project team, they lead the development of the collaboration objectives and the development and implementation of the collaboration methods for meeting those objectives.

The collaboration lead should have the appropriate experience and skill to design and implement collaboration methods that are specific to the coastal management problem to be addressed. However, just as with an applied science investigator, if the collaboration lead does not have all of the specific expertise required for a particular project, other personnel with those skills should be included on the team as additional investigators. For example, a collaboration lead may identify Joint Fact Finding as an appropriate collaboration methodology for a particular project, but they may lack the facilitation skills (or time) necessary to implement certain aspects of it. In that case, the need for facilitation would have to be filled by an additional investigator.

We have compiled examples of the kinds of collaboration skills and knowledge that may be important to have on the project team. These could be possessed by the collaboration lead and/or additional investigators. Please do not consider the following to be a list of skills and knowledge required for all projects—the needs of your project will depend on the problem to be addressed and the intended users involved:

- Familiarity with different collaboration methods/models (See "Key characteristics of collaboration methods" on page 16);
- Needs assessment;
- Setting ground rules for group meetings;
- Determining who will participate in collaboration activities;
- Ensuring that participants have an equal opportunity to provide input;
- Facilitation;
- Evaluation of feedback from participants;
- Working with project team members to integrate feedback into the project;
- Evaluation of progress in meeting collaboration objectives;

- Determining when to make mid-course corrections to better meet collaboration objectives;
- Groups decision making strategies;
- Conflict resolution.

You may be wondering where to find people with the appropriate experience and skills to fill the collaboration lead position for your project. We have observed that people come by this capacity in different ways (just as they do in other sciences).

There are "practitioners" trained to connect science and decision-making around issues and have years of experience in doing so—people like NERRS Coastal Training Program coordinators, Sea Grant and Land Grant Extension staff, and private-sector consultants.

There are also "scholar practitioners"—folks who are trained to both study and implement collaboration methodologies. They are based at universities or colleges, often in departments such as public policy, natural resources, geography, planning, environmental studies, sociology, and sustainability.

C. Creating collaboration objectives

The NERRS Science Collaborative's FY 2011 RFP calls for proposals to include objectives for collaboration that state specifically what you hope to achieve through the integration of applied science investigator and intended user perspectives throughout the project. Collaboration objectives are similar to those you will be creating for the applied science component of your project in one important way—they should link to your project's overall goals and increase the likelihood these goals will be achieved.

Collaboration objectives must be specific to the coastal management problem your team is addressing and the intended users involved. The choice of objectives and how they are scaled to fit the specifics of the project must be determined with the guidance of the collaboration lead and feedback from the rest of the project team. (So bring that person on board as soon as you can!) While there is not a pre-established set of objectives that will fit all proposals, we provide some broad objectives by way of example below:

- The problems, and approaches to addressing them, are jointly defined and created by applied science investigators and intended users. A key component of this is that information users learn from information producers and vice versa.
- The problem definition and research plan is relevant to the particular contexts of intended users.
- The applied science data that are used to define the problem and the applied science data that are generated by the project are viewed as high quality and credible by intended users.

The references below provide more information on collaboration objectives:

Mandarano, L.A. 2008. Evaluating collaborative environmental planning outputs and outcomes: restoring and protecting habitat and the New York-New Jersey Harbor Estuary Program. *Journal of Planning Education and Research*. 27: 456.

Conley, A. and M.A. Moote. 2003. Evaluating collaborative natural resource management. *Society and Natural Resources.* 16: 371-386
http://www.fs.fed.us/emc/nfma/collaborative_processes/conley_moote.pdf

Burgess, J. and J. Chilvers. 2006. Upping the ante: a conceptual framework for designing and evaluating participatory technology assessments. *Science and Public Policy.* 33(10): 713-728. http://www.ingentaconnect.com/content/beech/spp/2006/00000033/00000010/art00002

D. Key characteristics of collaboration methods

The NERRS Science Collaborative's FY 2011 RFP calls for proposals to include collaboration methods that are appropriate for the specific coastal management problem your team is addressing and the intended users involved. As with your collaboration objectives, the choice of methods for collaboration (and how they are scaled to fit your project) must be determined with the guidance of the collaboration lead and feedback from the project team.

The methods also must have enough detail for the collaboration experts reviewing your proposal to be able to assess their validity. Having a detailed description of collaboration methods is essential for your proposal to be competitive. There is no universal list of details that you should use to describe your methodology, but we can offer examples of the kinds of things that should be accounted for in your description:

- A clear and well-supported justification (based on experience and/or relevant literature) for the collaboration methods you have chosen;
- Specific plans for how often project applied science investigators and intended users interact;
- Specific plans for how those interactions will occur. (Who will be involved? How will barriers to effective participation be overcome? Decisions made? Disagreements handled?);
- A plan for how you will evaluate whether you are meeting your collaboration objectives;
- A plan for how resources to support activities associated with collaboration will be allocated; this may be reflected in the budget, personnel on the project, and the timeline*.

*A project that includes collaboration takes longer than a pure applied science project. Based on our experience, most applicants tend to greatly underestimate the amount of time it takes to integrate collaboration into the applied science timeline. We encourage you to keep this in mind as you make decisions about project goals and how to scale collaboration and applied science objectives.

E. Collaboration resources

We have compiled the following list of additional resources on collaboration as a reference for applicants to our FY 2011 RFP.

Publications

Cockerill K., H. Passell, V. Tidwell. 2006. Cooperative modeling: building bridges between science and the public. *Journal of the American Water Resources Association.* 42(2): 457-471.

Jacobs, K.L. (2002) *Connecting Science, Policy and Decision-Making: A Handbook for Researchers and Science Agencies.* National Oceanic and Atmospheric Administration, Office of Global Programs, Silver Spring, Maryland. http://ciceet.unh.edu/resources/jacobs-2002.pdf

Lynam, T., W. de Jong, D. Sheil, T. Kusumanto, K. Evans. 2007. A review of tools for incorporating community knowledge, preferences, and values into decision making in natural resources management. *Ecology and Society.* 12(1): 5. http://www.ecologyandsociety.org/vol12/iss1/art5/

Von Korff, Y., P. d'Aquino, K. A. Daniell, and R. Bijlsma. 2010. Designing participation processes for water management and beyond. *Ecology and Society.* 15(3): 1. http://www. ecologyandsociety.org/vol15/iss3/art1/

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Models of collaboration

The following are examples of collaboration models that have been applied effectively to address coastal management problems. While there are subtle differences between these approaches, all provide explicit mechanisms to integrate a variety of perspectives—including those of applied science investigators and intended users—at critical stages of the project.

This list is just a subset of the models that exist and we provide them by way of example, not endorsement. The collaboration lead (with feedback from the rest of the team) should be able to determine whether one of these or another approach is the best collaboration model for your proposal.

- Consensus Building & Joint Fact Finding
  http://web.mit.edu/dusp/epp/music/pdf/ENV_JF07_JFFarticle.pdf
- Collaborative Learning Model
  oregonstate.edu/instruct/comm440-540/CL2pager.htm
  —or—
  http://ciceet.unh.edu/living_coasts/projects/pdf/CLGuide_11-04-08.pdf
- Structured Decision Making
  www.structureddecisionmaking.org/steps.htm